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Industrial Horizons



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PRESENTS XMAS TREE



Pictured above is the President's Christmas Tree. The 99-foot Englemann spruce from Kootenai National Forest was chosen to stand on the White House grounds in Washington, D. C., during December as the nation's community Christmas tree. The job of felling the tree, hauling it to Libby and loading it onto two railway flatcars was done as a public service by J. Neils Lumber Co., in late November. The Great Northern Railway, and two other railroads, carried the tree free. The tree was lighted by a touch of a button by President Eisenhower just before Christmas at the annual Christmas Pageant for Peace, sponsored by the U. S. Chamber of Commerce. Lincoln County is one of the foremost producers of Christmas trees in the U. S. (Photo courtesy Libby Chamber of Commerce).

Manufacturing State's No. 2 Industry

Manufacturing, which contributed over \$242 million to Montana's economy in 1956, has become Montana's second largest source of basic income, surpassed only by agriculture. This fact was given in the Report of Activities of the State Planning Board. Over 20,000 people are now employed in manufacturing.

Despite the recession experienced by the state's economy during 1958, Montana has had significant economic growth in the past few years, according to the Report. For most indicators, Montana's growth is equal to or better than that of either surrounding states, or of the nation.

Manufacturing Up

Value added by manufacture increased by 167.5 per cent from 1947 to 1956, according to the Report—from \$90,845,000 to \$242,701,000. "Value added" is defined as the value of manufactured products shipped less the cost of materials, supplies, fuel, electric energy and contract work. It is considered an excellent indicator of economic activity. Montana's growth, percentagewise was surpassed only by that of certain Southwestern states. Manufacturing in the country as a whole increased by only 87.9 per cent. Wyoming's increase was 73.4 per cent, Idaho's 87.0 percent, Oregon's 69.7 percent and North Dakota's was 65.3 per cent. Total average employment in manufacturing increased from 16,157 in 1950 to 20,056 in 1958, a gain of 24.1 per cent.

Population Growth

Recent figures of the U. S. Bureau of Census show that Montana's population increased from 591,024 persons in 1950 to an estimated 688,000 on July 1, 1958—an increase of 16.4 per cent. This compares with a national average of 15.0 per cent, and is higher than the percentage growth experienced during the same period by immediately neighboring states, though it is lower than that of some Western states. This level of growth is a sharp contrast to the small population gains made by Montana from 1920 to 1950.

More Jobs

Because population gains are a reflection in part of economic capacity to support greater numbers of people, it follows that more jobs have come into existence in Montana. Montana's total civilian working force increased from 218,460 on April 1, 1950, to approximately 257,400 in September of 1958, for an increase of 18 per cent, according to figures of the Unemployment Compensation Commission. Careful analysis shows that sizeable employment declines in agriculture, coal mining, utilities and railroads were more than offset by moderate gains in petroleum production and manufacturing,

and by relatively large gains in construction, trades, services, finance and government.

Over-balance of Trade and Service Employment

However, the Report continues, complacency about the future based upon unquestioning satisfaction with the past is not justified.

"Evidencing this is the fact that a disproportionate amount of the expansion in income and employment has occurred in dependent activities (trade, services, finance and miscellaneous) and government. Though this has been the trend for the nation as a whole since World War II, it is somewhat more pronounced in Montana. It is unlikely that this unbalanced relationship between basic wealth-creating and dependent activities can continue.

"Therefore, it may be concluded that even more diversification along manufacturing and processing lines is necessary if the state is to maintain its healthy rate of economic and social growth."

The Report covers the activities of the State Planning Board from the period December 1, 1956, through June 30, 1958. Copies are available from the State Planning Board offices in Helena.

"An unusual lease negotiated by Ecclesiastical Furniture, Inc., could set a pattern for year-round use of facilities built for short-season occupancy. The firm will use the main building at the fairgrounds in Wattsburg, Pa., for 50 weeks of the year, then take a two-week vacation while the annual fair is in progress."

—Industrial Development Magazine, Nov. 1958, p. 2.

"An October deficit of 3,000 workers in the combined trade and service industries brings to sharp realization the impact of seasonality pressures on employment totals in those industries which serve the tourist trade. The annual pattern is the same: Spring brings the influx and Fall the exodus and in between direct benefits of increased customers accrue to hotels, motels, camps, cafes and bars, and service stations and garages. Employment in the trade and service industries is keyed to the volume of tourism—starting in May and declining in October, and affecting chiefly sales clerks, cooks and waitresses, fountain and drive-in help, service station attendants, bartenders, hotel and resort clerks, and maids."

—Montana Labor Market (Unemployment Compensation Com.), Nov. 1958.

Oil Again State's Most Valuable Mineral In 1958

Petroleum again was Montana's most valuable mineral in 1958, as it was in 1957, but the value of all minerals produced in the state declined eight per cent, according to preliminary estimates by the U. S. Bureau of Mines. Total value declined to \$177 million, lowest in many years.

Copper, lead and zinc production faced unfavorable market conditions, and this forced closure of higher cost operations and directed emphasis toward greater mechanization, open-pit mining and block caving on the Butte hill.

Base Metals Down

While the value of the historically important metals—copper, lead, zinc, silver and gold—decreased from \$76.8 million in 1957 to \$60.8 million in 1958, petroleum and natural gas increased from \$75.5 million to \$78.7 million. Most of the production of metals comes from the Butte hill, while petroleum is produced in Eastern Montana.

Despite the fact that the value of copper produced in Montana declined by 12 per cent in 1958, total production remained nearly static. However, copper output was increased toward the end of 1958 as prices advanced from a low of 25 cents a pound in January to 26.5 cents in June, and further to 27.5 cents a pound in October.

Review by Commodities

ALUMINUM: Production below capacity. Anaconda Aluminum Co., plant at Columbia Falls depended on imported Caribbean alumina that was supplied under contract by Kaiser Aluminum and Reynolds Metals Companies. The company continued development and research work on the technologic and economic feasibility of using Idaho clays as an alumina source at a \$1 million pilot plant at its Anaconda smelter.

BARITE: Production by Baroid Sales Division, National Lead Co., was about half the 1957 total. Crude mine output was ground at the Greenough (Missoula County) plant for use in rotary-drilling mud.

CEMENT: Both quantity and value increased over 1957. Ideal Cement Co., at Trident was the only producer.

CHROMITE: Concentrates (38% chromic oxide) purchased for government stockpile from American Chrome Co., (Mouat mine) at Nye reached over $\frac{3}{4}$ of the total 900,000 tons called for under a Federal purchasing contract. The company was investigating possible industrial markets for ferrochrome. The Mouat mine was the only Pacific Northwest producer in operation.

CLAYS: Combined output of bentonite, fire clay and miscellaneous clay was slightly less than in 1957. Baroid Sales Division, National Lead Co., reported a slight decrease in bentonite production from its Alzada pit in Carter County. Brazil Creek Bentonite Co., announced plans to develop a deposit 15 miles west of Glasgow (see INDUSTRIAL HORIZONS, July-August, 1958).

COAL: Quantity of bituminous coal and lignite was 188,000 tons, down from

846,134 tons in 1956. Montana-Dakota Utilities Co., began surface mining of lignite near Sidney for use in its new steam generating power plant.

COPPER: Butte was unusually quiet. Berkeley and Kelley mines were in full production, and the highly mechanized methods used in open-pitting and block-caving resulted in relatively high output per manhour. An estimated total of 91,200 tons was mined.

FLUORSPAR: A substantial increase in production was reported by Cummings-Roberts of Darby, marking the fifth consecutive year of higher output. The company continued to market a high grade fluorspar concentrate made at its heavy-metal plant.

GOLD: The 22,400 ounces produced during 1958 represented an all-time low in the reported history of gold production in Montana. The decrease was attributable to cutbacks in base-metal mining at Butte, and to a 31 per cent decrease from 1957 in the number of operating gold mines (lode and placer combined). About 74 per cent of the 1958 total came from Silver Bow County. Over 100,000 cubic yards of gold-bearing stream gravel was excavated by a floating dredge on Prickly Pear Creek near Jefferson City.

GYPSUM: Tonnage and value were slightly above 1957. Production was from the Shoemaker mine of U. S. Gypsum Co., and the Hanover mine of Ideal Cement, both in Fergus County. The local use pattern remained unchanged: plaster, wallboard, lath and cement; only a small quantity was marketed for agricultural purposes.

IRON ORE: Development was highlighted by extensive diamond- and rotary-drilling programs. Minerals Engineering Co., sent 4,000 tons of ore from its Carter Creek deposit near Dillon for testing (see INDUSTRIAL HORIZONS, September-October, 1958). Ralls & Harris Bros. shipped 8,000 long tons of magnetite ore to Ideal Cement from its Iron Cross Mine near Townsend. Young-Montana Corp., made no shipments during the year from Stanford.

LEAD: A sharp decline and lowest production since 1946 was reported. Nearly all is produced in Butte.

LIME: Output was 15 per cent higher than in 1957. Limestone was calcined to quicklime by the Anaconda Company in Anaconda. Elliston Lime Co., produced hydrated lime and quicklime.

MANGANESE: Final shipments were received under the Federal low-grade manganese purchase program (minimum Mn content of 12 per cent at Butte and 15 per cent at Philipsburg); 34,893 tons of Montana ore were accepted during 1958. The domestic small-producer "earlot" program (minimum 40 per cent Mn) continued, and was expected to terminate late in 1959. Completion of the Butte-Philipsburg low-grade purchase program left only three producers operating in Montana—Anaconda Co., in Butte; Trout Mining Division, American Machine & Metals, Inc., (Trout-Algonquin group at

Philipsburg); and Taylor-Knapp Co., (Moorlight Group at Philipsburg). Anaconda continued to utilize its output primarily for ferromanganese. Taylor-Knapp Co., shipped sinter to the GSA "earlot" purchase program, and some chemical and battery grade ores; a fine-grained middling product from its manganese mill was sold to a base-metal refinery for use as an oxidant.

MICA: The small production from the Thumper Lode near Gallatin Gateway and a deposit 15 miles south of Ennis was shipped to the GSA stockpile at Custer, S. D.

Petroleum Production Up

PETROLEUM and NATURAL GAS: Preliminary figures indicate recovery of crude oil advanced to 28.2 million barrels in 1958, (\$76.1 million). Natural gas output was 33.6 billion cubic feet, worth \$2.6 million. Increased jet-fuel requirements and stronger demand for asphalt for highway construction caused Carter Oil Co., to expand its refinery at Billings. Increased production and proved reserves were the reasons capacity of the Butte pipeline from Billings to Spokane was raised to 65,000 barrels per day.

PHOSPHATE ROCK: Production resumed an upward trend after experiencing a slight reversal in 1957. There were four major producers. Montana Phosphate Products Co., a subsidiary of Consolidated Mining & Smelting Co., Ltd. of Canada, shipped crude rock from its mine near Garrison to Trail, B.C., for manufacture into fertilizer. Victor Chemical Works converted Beaverhead County phosphate rock into elemental phosphorus at its Silver Bow reduction plant. J. R. Simplot Co., shipped phosphate rock from its mine in the Centennial Mountains east of Monida to its Pocatello fertilizer plant. Anaconda Co., continued to produce treble superphosphate fertilizer at the Anaconda reduction works. In addition, Anaconda Co., began operating its new \$1.5 million ammonium phosphate fertilizer plant at Anaconda with ammonia from Utah.

PYRITES: There was an increase in quantity and value of pyrites converted to sulfuric acid by the Anaconda Co., for use at its chemical-fertilizer and metallurgical works.

SAND and GRAVEL: Continued strong demand resulted in increased production to 11.5 million tons (\$9.0 million). Heavy construction contributed to the advance.

SILVER: A decrease of 39 per cent below 1957 was reported. Nearly 91 per cent of the state's total was produced on the Butte hill.

STONE: Production did not reach the level attained in 1957 when an unprecedented quantity was prepared for road construction. Much of the 2.0 million tons (\$2.5 million) was used for heavy construction.

SULFUR: Recovery of high-purity elemental sulfur by Montana Sulphur & Chemical Co., Billings, increased slightly.

(Continued on next page)

TALC: Tri-State Minerals Co., ground talc at its Barratts mill and also in Ogden, Utah. Sierra Talc & Clay Co., shipped output from its Ennis Mine to Grand Island, Neb., for grinding. American Chemet, a subsidiary of Columbia Paint Co., continued to ship talc and zinc oxide from its East Helena plant. There was a substantial increase in the quantity and value of Montana talc mined in 1958. Active deposits are located in Beaverhead and Madison Counties.

URANIUM: A small tonnage was recovered from the Pryor Mountains during 1958, and exploration continued in other parts of the state. Production was shipped to the AEC buying station at Riverton, Wyo.

VERMICULITE: Output was slightly less than in 1957.

ZINC: Output decreased 37 per cent compared with 1957; Silver Bow County supplied 79 per cent of the total.

Other Montana minerals produced or explored in 1958 included: Antimony, arsenic, asbestos, beryllium, bismuth, cadmium, columbium, corundum, gem stones, graphite, molybdenum, nickel, platinum, pumicite, sodium sulphate, titanium, vanadium and zirconium.

Montana Barley To Be Used In Malting

Montana barley, when grown in suitable areas east of the Continental Divide, has been classified as acceptable for malting and brewing by the Malting Barley Improvement Association, a trade association in Milwaukee. Four years of experimental tests on the growing and malting of Montana Betzes barley have been generally satisfactory (see story on original tests in *INDUSTRIAL HORIZONS*, April, 1957).

Five Million Acres Grown

Malting barley is a new crop in Montana, according to the Association. Although Montana is the nation's third largest barley producing state, none has been acceptable for malting until this time. The successful variety, Betzes, was introduced from Poland in 1938 by the U. S. Department of Agriculture and was released by the Montana and Idaho Agricultural Experiment Stations in 1957. Over five million bushels of Betzes were produced in 1958 in the Triangle area of Montana and other irrigated areas of the state.

The major requirements that must be met if barley is to be used for malting are: pure lots of an acceptable malting variety, high percentage of plump kernels low percentage of skinned and broken kernels, low protein content, high percentage germination, and bright color.

High protein content and excessive amount of skinned and broken kernels are likely to be major factors in determining the proportion of Montana Betzes that will enter malting channels. Proper fertilizer and irrigation practices will help to reduce protein content. Careful combining and handling procedures can effectively reduce the per cent of skinned and broken kernels.

Nearly all the 2.5 million bushels of Montana Betzes purchased for malting in 1958 is to be shipped to Eastern malting houses.

Windreel and Grain Blower Combine To Form New Industry

Another small business with growth potential for Montana.

Incorporation of the Montana Air-Reel Co., of Scohey on November 29, culminated several years of effort to find a local manufacturer for a Montana invention to serve regional agricultural markets.

The story goes like this.

Along about 1950, a Rudyard farmer named Curt Phillips invented an attachment for combine harvesters to replace the old bat type reel, which is inefficient when used in short grain. Jet blasts of air on the air-reel force the grain toward the cutting bar and thence, into the combine. The air-reel meets an age-old problem of harvesting by preventing the loss which occurs at the cutter bar when cutting short grain.

(Continued at top of next column)



A view of the Montana Feed and Grain Blower, manufactured in Whitetail, Mont.

A total of 32,800 acres of mustard seed was harvested in Montana in 1958, with a production of 19.3 million pounds, according to the U. S. Agricultural Marketing Service. Montana again produced nearly all the country's domestic mustard (about the same amount is regularly imported from Canada). Most of the Montana production is raised in Toole, Glacier, Liberty, Pondera and Teton counties. Despite the large production, there is only one mustard-crushing plant in Montana—the Montana Vegetable Oil & Feed Co., in Great Falls, which crushes a small amount for feed. All the rest is shipped to Eastern crushing plants for the manufacture of edible mustard or feed. A new process for extracting mustard oil and protein from mustard seed has been developed by Prof. K. J. Goering of the Chemistry Department at Montana State College. A new company, Oil Seeds Products, Inc., has been formed to develop the process.

Windreel Proves Up In Field

Actual performance records in the field show average savings of 1.5 bushels of wheat per acre, and two bushels of barley, according to Charles Bowman, Assistant Professor of Agricultural Engineering at Montana State College. Bowman became interested in the product after Phillips contacted the Endowment and Research Foundation at MSC for help in improving and marketing the product, especially emphasizing its performance in actual harvesting operations.

Finding the "wind-reel," as it was then called, a product with potential, the MSC people and the owners of the patent endeavored to find a manufacturer for the product. A midwestern manufacturer was found, but the search was continued for a manufacturer closer to the primary marketing area in the Great Plains.

At the same time, a small Montana manufacturer of another agricultural product was looking for other products to make and sell.

Grain Blower Made in Fine Building

The Truck Grain Blower Co., had been started in 1930 by G. E. and E. J. Schlechter of Whitetail to manufacture their device to blow grain into storage bins and box cars. An excellent 5,800 sq. ft. concrete building was built in Whitetail in 1941 and equipped with modern machine tools to manufacture the product. The firm was purchased in 1954 by Harold and Stella Barenz, and the office was moved to Scohey.

The new owners expanded markets to include materials-handling operations all over the country. The Blower, renamed the Montana Grain and Feed Blower, is now in regular use from Oregon to New York. Specialized uses include delivery of sawdust and other bedding materials into two-story broiler houses, handling of bulk salt, and elevating dry ingredients to the mixer in a dog-food factory in Brooklyn. Advantages of this blower over other materials-handling methods are straight-up delivery, non-separation of ingredients and almost complete lack of damage to pelleted feeds.

State Planning Board Arranges Meeting

Both parties—wind reel and truck grain blower—had contacted the State Planning Board about their problems. Acting in a liaison function, the State Planning Board sponsored a meeting in Helena on November 18. From this meeting arose the new Montana Air-Reel Company.

The owners emphasize several positive features of a semi-rural Montana location for their manufacturing operation:

1. Large quantities of surplus labor are available from October through May, when seasonal farming operations shut down.
2. Much of this labor is mechanically skilled and permanently resident.
3. There is good transportation and a major market within a few hundred miles.
4. Small towns make good places to live.

We wish this new firm good luck. It's another attempt to provide more employment opportunities in Montana by making a product for local and national markets. This is a small business that may grow into an important agricultural implement company.

FARM INCOME DECLINE SHOWS NEED FOR INDUSTRIAL DEVELOPMENT

Montana's total personal income continued to increase to a new high of \$1,236 million for 1957, with a per capita income of \$1,896, according to estimates by the U. S. Department of Commerce. This growth, however, was at a smaller rate than that for either the United States or the four other Rocky Mountain states.

The reason for Montana's relative lag in income growth lies largely in one sector of the state's economy: agriculture. Farm proprietors' income in 1957 was 12 per cent less than in 1947, and farm wages were down 24 per cent. In 1947, farm income accounted for approximately 31 per cent of Montana's total income; in 1957, the proportion was 16 per cent.

Included in personal income are income payments from all sources (before taxes): wages and salaries, proprietors' income, property income and transfer payments. Personal income is widely used as an indicator of business and economic activity.

Agricultural Decline Permanent

An excellent analysis of the decline in agricultural income is contained in the Sept., 1958, "Montana Business Review," published by the Bureau of Business and Economic Research at Montana State University. An article by Maxine C. Johnson, Research Associate with the Bureau, points out that farm income in all probability will not regain its post-World War II importance as a source of total state income.

"The future growth and expansion of employment and income in Montana, therefore, must come largely from the non-agricultural primary and secondary, or 'wealth-creating' industries such as mining and manufacturing. These are the industries which create the demand for and promote the long-run growth of the trade, service, finance and other tertiary industries."

Mrs. Johnson's analysis continues with several comments.

Lag in Basic Industries

First, despite recent growth in the state's nonagricultural income, particularly in manufacturing, the proportion of income payments from basic industries upon which future growth is dependent is considerably smaller in Montana than in the nation. Montana's economy still displays a lack of balance and a rather top-heavy structure of tertiary activities. And

CITY PLANNING AMENDMENTS TO BE SUBMITTED TO LEGISLATURE

Amendments designed to clarify the enabling legislation for City-County Planning Boards will be submitted to the 1959 Legislature by the Association of Montana Planning Boards, according to H. Cleveland Hall, president of the Association.

The proposed amendments will tie City-County Planning Boards closer to the governing bodies which create them—City Councils and Boards of County Commissioners. They were adopted at the Statewide City Planning Meeting held in Helena last October 25 by 58 persons representing 11 communities with City-County Planning Boards.

Amendments Meet Objections

"Since the legislation went into effect on July 1, 1957, 14 City-County Planning Boards have been formed in Montana," Hall stated. "However, objections have been expressed to certain provisions in the law. The October meeting was held to consider these objections and to prepare suitable amendments to meet them. All the amendments were adopted unanimously by the group. We feel they will strengthen planning in Montana."

"Montana is ahead of surrounding states in the ability to channel the growth of our cities for the benefit of all," Hall continued. "Authorities have stated that we have some of the best planning legislation in the country. However, the proposed amendments are necessary if our planning boards are to operate more efficiently and within the law."

Copies of the proposed amendments are available from the following Presidents of City-County Planning Boards:

CITY-COUNTY PLANNING BOARDS IN MONTANA

Board	President	Address
1. Billings-Yellowstone	E. C. Nielsen	234 Lewis
2. Bozeman-Gallatin	H. D. Korslund	Box 113
3. Butte-Silver Bow	T. S. Veazey, Jr.	Box 427
4. Columbia Falls-Flathead	George A. Shay	Box 505
5. Glasgow-Valley	G. E. Kjelstrup*	City Hall
6. Great Falls-Cascade	H. Cleveland Hall	Box 1744
7. Havre-Hill	Vance Murphy	1202 2nd St.
8. Helena-East Helena-Lewis & Clark	H. S. Dotson	Granite Bldg.
9. Kalispell-Flathead	Charles L. Hash	Box 686
10. Libby-Lincoln	Paul Evans	Libby
11. Livingston-Park	Richard A. Buelke	1218 W. Cambridge
12. Miles City-Custer	J. R. Porten*	321 Main
13. Missoula-Missoula	V. R. Peterson	Box 49
14. Whitefish-Flathead	Henry Irwin*	Whitefish

Copies also available from State Planning Board

*Officers not yet elected; name listed is contact.

these activities are expanding faster, in some cases, than are basic industries like mining and manufacturing. How long can this imbalance continue?

Growth Must Come from Manufacturing

Second, it is likely that the bulk of expansion in Montana's basic industries will have to occur in manufacturing. Metal mining may well have reached its peak in 1955 and 1956, and petroleum production, while expanding, will not soon attain great importance.

"Thus," she concludes, "the need for an accelerated expansion in manufacturing activities, if Montana is to continue to grow and to prosper, is again demonstrated."

Organization of a new \$250,000 industry was announced in December by Treasure State Industries. The expanded shale plant will process gray shale into a prime ingredient for light-weight aggregate used in the rapidly growing pre-stressed and pre-cast concrete business. The bloating of the shale will be produced by a 7x120' rotary gas-fired kiln which will heat the raw shale to a temperature of 2100° F. The expanded shale will be crushed and screened to the exact specifications of customers. The project was originally investigated as a potential industry by the Great Falls Chamber of Commerce, in conjunction with the Montana Bureau of Mines and Geology (see INDUSTRIAL HORIZONS, Sept., 1956).

MONTANA STATE PLANNING BOARD

Sam Mitchell Building

Helena, Montana

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